DOCUMENT RESUME

ED 078 611 EC 052 070

TITLE	The Impact of Resource Room Instruction on Academic Achievement of L/LD Students.
INSTITUTION	Marshall Independent School District, Tex.
PUB DATE	[73]
NOTE	14p.
AVAILABLE FROM	Marshall Independent School District, Marshall Texas 75670
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Academic Achievement; Elementary School Students; *Exceptional Child Research; Language Handicapped; *Learning Disabilities; *Program Evaluation; *Resource Centers

ABSTRACT

Analyzed were the academic achievement test scores for approximately 46 language or learning disabled elementary school students receiving instruction in a program based on the resource room concept. The Iowa Test of Basic Skills was administered prior to and following the program. Resource room instruction appeared to have a positive effect upon student academic achievement particularly in the area of language skills with a positive but lower effect observed for arithmetic skills and understandings. As expected, a decrease in academic growth rate followed return to the regular classroom program. (See EC 052 071 for a companion study). (DB)

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THE IMPACT OF RESOURCE ROOM INSTRUCTION ON ACADEMIC ACHIEVEMENT OF L/LD STUDENTS

AN EVALUATION STUDY

MARSHALL INDEPENDENT SCHOOL DISTRICT

MARSHALL, TEXAS

EC052070

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ABSTRACT

This report presents the results of an analysis of academic achievement test scores for students receiving instruction in the district's L/LD resource rooms during the 1970-72 time period. Only those students who were both pre-tested and post-tested using the Iowa Test of Basic Skills (ITBS) were included. Current ITBS scores were also collected and considered as a measure of post-program progress.

The results indicate resource room instruction has a very positive effect upon student academic achievement growth rate as measured by the ITBS. The tremendous impact of the program on language skills is very evident. An increased proficiency rate appears to also be evident in arithmetic skills and understandings, although not to the extent expressed in the language scores. However, post-program data indicate a decrease in academic growth rate. This was expected.

These results, coupled with very favorable ratings for the program given by teachers and administrators in the interview phase of the study (See Process Evaluation Report), indicate a highly successful program. More specific information is given in the body of the report.

INTRODUCTION

This report presents the results of an analysis of academic scores for students who have received resource room instruction in the district's L/LD program. The target population was nine year old students. The study was limited to students who were administered the Iowa Test of Basic Skills prior to entering the program and upon dismissal from a resource room.

Certain assumptions were necessary for the study. First, it was assumed that academic growth for the group (although not for any particular individual) was linearly related to the amount (time) of formal instruction. Using number of years (or months) of instruction and academic achievement progress data, pre-program, intra-program and post-program academic growth rates were calculated and analyzed.

Also, the study was limited to students having the ITBS on a pre-program -- post program basis. These students did not constitute a random selection; however, they were not selected on any particular basis that would tend to produce a systematic difference between the L/LD students in the study and the L/LD

students not included in the study. Thus, the students studied appear to be representative of all students receiving resource room instruction and the effects described in this report should be generalizable to the L/LD population for the district.

It should also be noted that this study of necessity considered short term effects. This is particularly true of post-program results since many of the students have been out of the program a relatively short period of time. A further limitation was the use of norm-referenced tests which are certainly less sensitive to changes in student behavior than criterion-referenced measures. However, since norm-referenced data constituted the best information available, these scores were used.

QUESTIONS CONSIDERED

The study revolved around three over-riding questions. These were:

(1) Do the students in the resource rooms experience a significant (.05 level) acceleration in rate of academic growth while in the resource rooms?

(2) Do students who have been dismissed from the resource room maintain an accelerated achievement rate?

(3) Does resource room instruction tend to produce greater academic gains in particular instructional areas?

ANALYSIS OF TEST SCORES

Computations were performed for various sub-sets of student/scores depending upon whether or not test scores were available. Across all analyses, the groups ranged in size from forty-four (44) to forty-eight (48) students. Table 1 indicated the entry level mean grade equivalency scores for the students by test score area. Highest means were obtained in Spelling and on the Total.

TABLE 1

PRE-TEST (ENTRY LEVEL) GRADE EQUIVALENCY SCORES FOR STUDENTS IN THE STUDY

Test Score Area	Mean	Range	N
Vocabulary	3.35	2.2 - 4.6	45
Reading	2.71	1.6 - 5.3	46
Spelling	3.61	1.7 - 6.4	44
Total Language Score	3.42	2.4 - 5.9	46
Total Arithmetic Score	3.40	2.0 - 5.3	48

Language variable, followed closely by Arithmetic and Vocabulary. The lowest mean was Reading. The groups analyzed ranged from sixty-four (64) to seventy-two (72) percent males. This preponderance of males is characteristic of the program.

Table 2 presents the average length of time students spent in length is a function of varying numbers of students in each analysis group, not as the results of any instructional arrangements that would attempt to offer reading instruction to the exclusion of vocabulary skills development, etc. A slight tendency for students to remain longer for Arithmetic instruction was noted.

TABLE 2

AVERAGE LENGTH OF TIME IN RESOURCE ROOMS BY TEST AREA FOR STUDENTS IN THE STUDY

Test Score Area	Average Number of Months	Range (in Months)	N
Vocabulary	11.5	4 - 21	44
Reading	10.7	2 - 21	46
Spelling	11.5	2 - 20	45
Total Language	10.3	2 - 20	46
Total Aritmetic	12.0	4 - 21	47

Table 3 indicates the mean grade equivalency months progress for students in the study on the test scores considered. These are ranked from highest to lowest.

TABLE 3

AVERAGE ACADEMIC GAINS OF STUDENTS WHILE IN THE RESOURCE ROOMS BY TEST AREA

Test Score Area	Mean Gain (G. E.)	N
Spelling	1.9	44
Total Language	1.8	46
Vocabulary	1.7	45
Reading	1.6	46
Total Arithmetic	1.4	47

Thus, Tables 1, 2 and 3 indicate the following characteristics of the students in the study:

- Approximately twice as many boys were in the study. This adequately reflected the preponderance of males in the resource room.
- The students entered the program with extremely wide ranges in performance levels; overall, their most serious problem (lowest test scores) was reading.

- The students seemed to spend more time (on the average) in the resource room for arithmetic instruction than language.
- The duration of resource room instruction for the students in the study ranged from a few months to more than two years.

RESULTS

Certain inferential statistical procedures were employed to evaluate program effectiveness in altering academic growth rates for students. These statistical procedures were used in an attempt to estimate the magnitude of differences in scores; although the group of students did not represent a true random sample of the L/LD population. However, the evaluators and program personnel could point to a number of things that indicated the group studied was representative of the students who had been and still are in the resource rooms.

With this perspective, the test scores were analyzed in an attempt to answer each of the three major questions considered in the study.

Question # 1: Do the students in the resource rooms experience a significant (.05 level) acceleration in rate of academic growth while in the resource rooms?

Table 4 represents the results of an analysis of intra-program growth rates for five measures obtained on a pretest - posttest measurement schedule with the ITBS. An accelerated academic growth rate was indicated in the case of all five measures.

TABLE 4

MEANS, STANDARD DEVIATIONS, AND t-VALUE FOR

PRE-PROGRAM AND INTRA-PROGRAM ACHIEVEMENT

GROWTH RATES (N = 41)

Test Score Area	Pre-Program		Intra-Program			
	Mean	S. D.	Mean	S. D.	t	P
Vocabulary	.08	.098	.12	.059	2.15	.05
Spelling	.07	.027	.13	.097	3.12	.01
Reading	.09	.152	.13	.086	1.14	.26
Total Language	.07	.020	.13	.083	4.46	.01
Total Arithmetic	.09	.140	.12	.148	.714	.47

Quite obviously the resource room instruction enhances academic achievement as measured by standardized achievement tests. The greatest progress is in the overall area of language development skills. Arithmetic proficiency and knowledge was apparently affected, although not to a statistically significant degree.

Thus the program, conceptualized and operating as an intervention model, appears to be very effective. Student academic growth rates do experience significant positive changes.

Question # 2: Do students who have been dismissed from the resource rooms maintain an accelerated achievement rate?

The scores in Table 5 suggest they do not. These results are not surprising for several reasons. First, the concentrated, individualized instruction is often not maintained in the regular classroom. Also, a post-program adjustment period of unknown duration probably exists. Such effects could not be controlled in the study. An inspection of the data seemed to indicate a relationship between length of time since dismissal from the program and academic growth subsequent to dismissal. This would seem to substantiate the idea of a post-program academic let-down by students. In this case, longitudinal information will reflect more favorably on post program effects. However, serious efforts should be made to determine the specific reasons for the apparent decrease in ahcievement rate.

TABLE 5

INTRA-PROGRAM AND POST-PROGRAM

ACADEMIC GROWTH RATES FOR THE

STUDENT IN THE STUDY

Test Score Area	Intra-Program Mean	Intra-Program S. D.	Post-Program * Mean	Post-Program * S. D.
Vocabulary	.12	.059	.05	.118
Spelling	.13	.097	.05	.186
Reading	.13	.086	.05	.130
Total Language	.13	.083	.03	.152
Total Arithmetic	.12	.148	.03	.113

* Calculated from current achievement test data

Question # 3: Does resource room instruction tend to produce greater academic gains in particular instructional areas?

A careful consideration of the information in Tables 1 and 2 indicates the resource rooms seem to effect greater achievement gains in language than arithmetic. This undoubtedly reflects methodology and content.

CONCLUSIONS

The analyses of ITBS scores indicated the following:

- The resource rooms do positively alter academic growth rates. There is an acceleration in the acquisition of language skills.

- The resource rooms appear to positively alter the academic growth rate in arithmetic as measured by the arithmetic sections of the ITBS. However, the evidence here is not as compeling.

- The resource rooms appear to do a better job developing language proficiency than arithmetic.

These results, coupled with the very favorable perception of the program by personnel at all levels in the program, point toward a very effective academic intervention program. However, the instructional mode quite possibly is pointed heavily toward language (as opposed to arithmetic) intervention. The academic achievement scores certainly seem to reflect a differential.

RECOMMENDATIONS

The following recommendations appear in order:

- Efforts to systematically assess the effect of resource room instruction should continue and include non-academic variables as well as academic.

- Program personnel should carefully explore the reasons why less impact is made in the area of arithmetic.

- A systematic plan should be developed for the collection and storage of program evaluation information to facilitate studies in the future.

- Studies on the impact of the resource rooms on academic achievement should be repeated periodically to assure that the desired effect is being obtained.

- Follow-up studies should be made to determine the longitudinal impact the resource rooms have on students.